

USSR / Microbiology - Industrial Microbiology.

F

Abs Jour: Ref Zhur-Biol., No 9, 1958, 38397.

Author : Shamis, D. L., Tyutenkova, N. L., Medvedeva,  
L. E.

Inst : Not given.

Title : Conditions for Preserving Fermentation Activity  
of Molasses-Alcohol Yeasts.

Orig Pub: Tr. In-ta mikrobiol., i virusol. AN KazSSR,  
1956, 1, 96-105.

Abstract: It was established that the "ya" race of the industrial culture *Saccharomyces cerevisiae* divides, as influenced by varied production conditions, into two variants (smooth and wrinkled). The smooth variant possesses a greater fermentation power by comparison with the wrinkled, which, however, is capable of producing a great-

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USSR / Microbiology - Industrial Microbiology.

F

Abs Jour: Ref Zhur-Biol., No 9, 1958, 38397.

Abstract: er biomass. Both variants in laboratory environments retain these properties for 2 years. However, under industrial environments a repeated division of the smooth variant is observed with formation of a slow-acting wrinkled variant. It was established that preservation of yeast fermenting stability in a molasses-alcohol distillery is conditioned by strict adherence to technological handling conditions.

Card 2/2

64

TYUTEN'KOVA, N.L.

Using wild reed for preparing fodder yeast. Trudy Inst. mikrobiol.  
i virus. AN Kazakh. SSR 5:69-76 '61. (MIRA 15:4)  
(Reed (Botany)) (Yeast)

L 00734-67 ENT(1) CW

ACC NR: AT6015882

SOURCE CODE: UR/2797/65/002/006/0103/0114

AUTHOR: Tyuterev, G. S.

ORG: none

TITLE: The effect of wind on the results of latitude and time determinations at Pulkovo, Herstmonceaux, and Tokyo

SOURCE: Pulkovo. Astronomicheskaya observatoriya. Izvestiya, v. 22, no. 6(176), 1965, 103-114

TOPIC TAGS: wind, wind direction, geophysics, atmospheric wind field, latitude determination

ABSTRACT: The wind effect in latitude and time determinations made at Pulkovo, Herstmonceaux, and Tokyo during the IGY--IGC, and at Pulkovo during 1935--1941 is investigated. Correlation coefficients are obtained for astronomical observations, wind speed and azimuth, with comparative results being obtained from several observatories. The results of the mean residuals of latitude  $\Delta \varphi$  and clock corrections  $\Delta U$  for wind of different azimuths  $A$  and velocities  $V$  are given in tables showing the individual measurements at the three stations. Observation and wind direction correlation coefficients are also tabulated, along with the numerical parameters of the equations  $\Delta \varphi = a \cos (A - \alpha)$  and  $\Delta U = b \sin (A - \beta)$ . Fifteen plots are presented giving the variations of the smoothed residuals  $\Delta \varphi$  and  $\Delta U$ . The action of the wind

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00734-67

ACC NR: AT6015882

at various observatories differs considerably and can be of opposite sign. The wind effect is modified by the effect of local relief, which creates deviations in the air layer adjacent to the earth, thus causing corresponding refraction anomalies. The summary discussions include evaluation of the comparative effects of strong, medium, and light winds. The author expresses his appreciation to M. S. Zverev, corresponding member of AN SSSR, for his scientific guidance. Orig. art. has: 16 figures and 3 tables.

SUB CODE: 04.03/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 005

Card 2/2 LC

TYUTEREV, G.S.

Lunar occultations of stars observed in Tomsk. Astron. tsir.  
no.191:23 My '58. (MIRA 11:9)

1. Astronomicheskiy kabinet Tomskogo gosudarstvennogo universiteta.  
(Occultations)

TYUTEREV, G.S.

Observations of lunar occultations of stars in Tomsk. Astron.  
tsir. no.224:36 Ag '61. (MIRA 16:1)

1. Tomskiy gosudarstvennyy universitet.  
(Occultations)

SOV/35-59-8-6204

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959,  
Nr 8, p 15

AUTHOR: Tyuterev, G.S.

TITLE: The Observations of Occultations of <sup>✓</sup>Stars by the <sup>✓</sup>Moon in Tomsk

PERIODICAL: Astron. tsirkulyar, 1958, May 8, Nr 191, p 23

ABSTRACT: Seven moments of occultations, obtained in January-March 1958  
are given.

Card 1/1



S/035/60/000/006/013/038  
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 6,  
p. 19, # 5015

AUTHOR: Tyuterev, G. S. ✓

TITLE: Observations of Star Occultations by the Moon at Tomsk ✓  
B

PERIODICAL: Astron. tsirkulyar, 1959, iyunya 5, No. 202, p. 20

TEXT: Seven events of occultations observed in 1959, January to March,  
by means of a Bamberg 2'' universal instrument (D = 70 mm) are given.

Translator's note: This is the full translation of the original Russian  
abstract.

Card 1/1

TYUTEREV, G.S.

Determination of the latitude and longitude of the astronomical observatory of Tomsk University. Trudy TGU 144:109-116 '59.  
(MIRA 13:6)

1. Kafedra astronomii geodezii Tomskogo gosudarstvennogo universiteta im. V.V. Kuybysheva.  
(Tomsk—Observatories)

TYUTEREV, G.S.

Observations of lunar occultations of stars in Tomsk, Astron.  
tsir. no.202:20 Je '59, (MIRA 13:4)

1. Astronomicheskii kabinet Tomskogo universiteta.  
(Occultations)

TYUTEREV, G.S.

Observations of lunar occultations of stars. Astron. tsir. no.181:23-24  
Je '57. (MIRA 13:3)

1.Tomskiy gosudarstvennyy universitet.  
(Occultations)

TYUTEREV, G.S.

Observations of lunar occultations of stars in Tomsk. Astron.  
tsir. no.197:17 N '58. (MIRA 12:7)

1. Astronomicheskiy kabinet Tomskogo universiteta.  
(Occultations)

TYUTEREV, G.S.

Observations of lunar occultations of stars in Tomsk. Astron. tsir.  
no. 177:21-22 № 157. (MIRA 10:5)

1. Astronomicheskiy kabinet Tomskogo gosudarstvennogo universiteta  
im. V.V. Kuybysheva.

(Occultations)

ITY u T E R E U , I . P

21(4)	PHASE I BOOK EXPLOITATION	30V/2583
	International Conference on the Peaceful Uses of Atomic Energy.	
	2nd, Geneva, 1958.	
	Library collection number: yadernye reaktory i yadernaya energiya. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1958. 707 p. (Series: It's Today, vol. 2) Kzeta slip inserted. 8,000 copies printed.	
	General Eds.: M.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.E. Krasin, Doctor of Physical and Mathematical Sciences, A.L. Lopyunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Kuzikov, Corresponding Member, USSR Academy of Sciences, I.I. Kuzikov, Doctor of Physical and Mathematical Sciences, Ed.: A.P. Alyab'yev, Tech. Ed.: Ye. I. Mazel.	
	PURPOSE: This book is intended for scientists and engineers engaged in reactor design, as well as for professors and students of higher technical schools where reactor design is taught.	
	COVERAGE: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to the atomic power plants under construction in the Soviet Union; the second to experimental and research reactors in the Soviet Union; the third, which is predominantly theoretical, to problems of the nuclear reactor physics and construction engineering. Yu. V. Kuryakin is the scientific and editorial editor of this volume. See 30V/2081 for titles of all volumes of the set. References appear at the end of the articles.	
	Mostovoy, V.I., V.S. Dikarev, M.B. Yegizarov, and Yu. S. Saltykov. Measuring Neutron Spectra in Uranium Water Lattices (Report No. 2152)	546
	Erasin, A.E., E.G. Dubovskiy, M.M. Lutsay, Yu. Yu. Glazkov, R.E. Goncharov, A.V. Knaev, L.A. Gerasimov, V.V. Prolov, Ye. I. Iyutin, and A.P. Senechikov. Studying the Physical Characteristics of a Beryllium-moderator Reactor (Report No. 2146)	555
	Galsin, A.D., S.A. Medvedevskaya, A.P. Rudik, Yu. G. Abov, V.F. Belkin, and P.A. Krupchitskiy. Critical Experiment on a Experimental Heavy-water Reactor (Report No. 2036)	570
	Karebik, G.L., V. Ya. Puklo, Ye. I. Pogudalins, V.V. Smolov, V.F. Krut'kov, S.R. Platonova, and G.I. Druzhinin. Certain Problems in Nuclear Reactor Physics and Methods of Calculating Them (Report No. 2151)	588
	Slyutskiy, G.V. and V.M. Semenov. Determination of Control Rod Effectiveness in a Cylindrical Reactor (Report No. 2469)	613
	Gel'rand, I.M., S.M. Fyrenberg, A.S. Prolov, and M.M. Chentsaov. Using the Monte Carlo Method of Random Sampling for Solving the Kinetic Equation (Report No. 2141)	628
	Salatin, M.I. Neutron Distribution in a Heterogeneous Medium (Report No. 2189)	634
	Kuznetsovskiy, M.V., A.V. Stepanov, and P.I. Shapiro. Neutron Thermalization and Diffusion in Heavy Media (Report No. 2148)	651
	Teynik, A.L., V.S. Yermakov, and A.V. Lykov. Using the One-Group Theory for Studying Neutron Diffusion in the Absorbing Media of Nuclear Reactors (Report No. 2224)	668
	Prodar, R.L., S.A. Burkin, A.A. Rutuzov, V.V. Levin, and V.V. Orlov. Studying the Spatial and Energy Distribution of Neutrons in Different Media (Report No. 2147)	674
	Baitliyev, A.B. Boron Ionization Chambers for Work in Nuclear Reactors (Report No. 2084)	690
	Kirillina, V.A., and S.A. Ulybin. Experimental Determination of Specific Volumes of Heavy Water in a Wide Temperature and Pressure Range (Report No. 2471)	696

BOGATYREV, N.F., mashinist-instruktor; TYUTEREV, L.I., mashinist  
elektrovoza

Characteristics of the operation of N8 electric locomotives in  
winter. Elek.i tepl.tiaga 6 no.2:3-4 F '62. (MIRA 15:2)

1. Depo Dama Kuybyshevskoy dorogi (for Bogatyrev).  
(Electric locomotives--~~cold~~ weather operations)



Τη 4 Γεν, V.A.

18(5)

## NOTES:

**LIBRARY**

**PERIODICAL:**

### ABSTRACT:

Card 1/3

SOV/128-59-3-12/31

Smolenskiy, S.I.: Ogulin, N.M.; Zaslavskiy, G.P.,  
Provoyniy, A.K. and Tyutev, V.A., Engineers

## Steel Molds for Large Steel Castings

**Liteynoye Proizvodstvo, 1959, Nr 3, pp 23-26 (USSR)**

kind surface. Consequently the quality of the repair is judged by way of two characteristics: a) According to the number of pourings possible before the need to repair, when the cracks have to be eliminated; b) to the point when the exact dimensions are lost and must be re-machined. Several tests have been made to study the properties of the metal dies, to establish the suitable shape and the necessary thickness of the metal walls. By means of sections, and photographs of the metal dies, the results are in accord with the contents of the tests in comparison with the mean thickness of carbon, and the point of formation of hair line cracks are established. Conclusion: Best results will be achieved when the metal dies having wall thickness of 150 to 170 mm. The steel used for the dies should not have more than 0.10% carbon and not more than 0.02% of sulphur.

Card 2/3

# Permanent Metal Dies from Steel for the Casting of Large Steel Casting Shapes

contents. There are 7 graphs and 2 photographs.

Card 3/3

S/128/62/000/003/004/007  
A004/A127

AUTHORS: Tyuteva, N. D., Yevtyushkin, Ya. A.

TITLE: Cast cutting tools

PERIODICAL: Liteynoye proizvodstvo, no. 3, 1962, 38 - 39

TEXT: The authors describe the technology of manufacturing cast cutting tools from the high-speed steel grades P 9 (R9) and P 18 (R18) modified with boron. The burning out of carbon during the smelting process was compensated for by the addition of 0.2% and 0.1% C for the grades R18 and R9 respectively, in the form of R18 steel carburized up to 5%. The addition of this alloy, without reducing the basic quantity of alloying elements, considerably increases the C-content of the melt. The steel was reduced with 0.2% Al, then 0.010% boron was added 70 - 90 seconds prior to casting at a constant temperature of 1,450 - 1,480°C into the molds. The authors give a description of the used chills and casting technology, according to which cutting-off, profiling and chasing tools were manufactured, the steel grades having the following composition: 0.86 - 1.1% C; 7.8 - 9.1% W; 3.0 - 4.0% Cr; 2.0 - 2.9% V; 0.001% B, and 0.8 - 1.1% C; 17.6 - 18.5% W; 3.7 - 4.9% Cr; 0.92 - 1.2% V; 0.001% B. The heat treatment

Card 1/2

Cast cutting tools

S/128/62/000/003/004/007  
A004/A127

consisted of double tempering for 1 hour each at 600 - 620°C. The following parameters were obtained: HRC 63 - 64,  $\sigma_b = 80 \div 95 \text{ kg/mm}^2$ ,  $a_k = 0.2 \div 1.0 \text{ kgm/cm}^2$ . The tools were tested on automatic turret lathes. The tests showed that the life of cast tools exceeds that of forged tools by a factor of 1.15 with radial feed and by a factor of 2. with tangential feed. The life of cast cut-off tools exceeds that of forged tools of the same type by a factor of 1.6. The authors point out that the life of cast tools can be compared with sintered carbide tools. ✓

Card 2/2

TYUTEVA, N.D., kand.tekhn.nauk; YEVTYUSHKIN, Yu.A., inzh.

Technological processes in manufacturing cast cutting tools  
of high-speed steel with a boron addition. Vest.mash. 42  
no.3:82-83 Mr '62. (MIRA 15:3)  
(Metal cutting tools)

TYUTEVA, N.D.; YEVTYUSHKIN, Yu.A.

Cast cutting tools. Lit.proizv. no.3:38-39 Mr '62. (MIRA 15:3)  
(Tool steel) (Founding)

S/122/62/000/003/007/007  
D262/D302

AUTHORS: Tyuteva, N.D., Candidate of Technical Sciences and  
Yevtyushkin, Yu.A., Engineer

TITLE: Manufacture of a cutting tool from high speed steel  
with an addition of boron

PERIODICAL: Vestnik mashinostroyeniya, no. 3, 1962, 82 - 83

TEXT: A method of making cast steel cutting tools in chill moulds is described. To 20 kg of melted steel P9 or P18 (R9 or R18) boron in powder form (40 g of 5 % ferroboration) was introduced. As a deoxidizing agent aluminum (0.2 %) was used, and loss of carbon was compensated for by the introduction of 0.2 % carbon for steel R18 and 0.1 % for steel R9, by adding to 20 kg of remelted steel 800 g of carbonized, high speed steel R18. Chemical composition was similar to that of steel R18, carbon content increased (1.0 - 1.2 %) boron content 0.001 %. Cast tools were tempered twice at 600°C or 620°C for 1 hour. The tools were then tested on automatic turret machines and the obtained results showed that the working life of

Card 1/2

Manufacture of a cutting tool from ...

S/122/62/000/003/007/007  
D262/D302

these tools was higher compared with the working life of tools made of forged steel R18. There are 2 tables.

Card 2/2

TYUTEVA, N.D.; LIKHOSHERSTOV, D.M.

Small additions and dislocations. Izv. vys. ucheb. zav.;  
chern. met. 6 no.12:137-140 '63. (MIRA 17:1)

1. Tomskiy politekhnicheskii institut.



titles of the modifiers by the previous forms of a word.

TYUTEVA, N. D., Doc Tech Sci (diss) -- "Cast modified alloys". Tomsk, 1959. 25  
pp (Min Higher Educ USSR, Tomsk Order of Labor Red Banner Polytech Inst im S. M.  
Kirov), 150 copies (KL, No 24, 1959, 134)

TYUTEVA, N.D.

TYUTEVA, N.D.

Effect of boron on the hardenability of the Sh Kh-15 ball-bearing steel. Izv.TPI 85:291-294 '57. (MIRA 10:12)

1. Predstavleno prof. doktorom tekhn.nauk A.N. Dobrovidovym.  
(Boron) (Steel--Testing)

TYUTEVA, N.D.

Effect of the modification by boron on the changes in the  
composition of chromium alloy carbides. Izv.TPI 85:288-290  
'57. (MIRA 10:12)

1. Predstavleno prof. doktorom tekhn.nauk A.N. Dobrovidovym.  
(Chromium alloys) (Boron) (Carbides)

L 09142-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(s) JD  
 ACC NR: AR6027450 SOURCE CODE: UR/0276/66/000/004/0006/G006 38  
 AUTHOR: Krevakiy, G. G.; Simonov, G. V.; Tyuteva, N. D.  
 TITLE: Effect of ultrasonic treatment on the crystallization process in ShKh15 steel  
 SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 4G32  
 REF SOURCE: Izv. Tomskogo politekhn. in-ta, v. 138, 1965, 192-195  
 TOPIC TAGS: ultrasonics, metal crystallization, magnetostriction  
 ABSTRACT: Ingots 38 mm in diameter and 100-120 mm high teemed in metal and ceramic molds were used for studying the effect of ultrasonic treatment on the crystallization process in ShKh15 steel melted in an acid induction furnace. A ZG-64 ultrasonic generator was used with magnetostriction transducers made from K50F2 alloy. Oscillations were set up in the metal through cylindrical, exponential and conical concentrators. The concentrator was placed directly in the bottom of the mold. Ultrasonic vibration was continued throughout the entire crystallization period until the ingot was cooled to about 500°C. Ultrasonic conditions: resonance frequency 19.4-19.45 kc, power 2.6-2.8 kw, electroacoustic efficiency 46.4-47.7%. The rate of crystallization was controlled by varying the wall thickness in metal molds and by heating in ceramic molds. Control ingots without ultrasonic treatment were cast in all cases. It was found that ultrasonic treatment increases density and the volume of the shrinkage cavity in all

Card 1/2 UDC: 669.15-194:621.746.62:621.034

L 09142-67

ACC NR: AR6027450

ingots. Cylindrical concentrators are most effective. The treatment has a better effect in metal molds. An increase in grain size is observed together with an overall improvement in structure at a low rate of crystallization. 4 illustrations, bibliography of 7 titles. A. Litinskiy. [Translation of abstract]

SUB CODE: 11

Card 2/2 nat

SOV/137-58-8-17849

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 235 (USSR)

AUTHOR: Tyuteva, N. D.

TITLE: How Boron Inoculation Affects Changes in the Composition of Carbides Present in Chromium Alloys (Vliyaniye modifitsirovaniya borom na izmeneniye sostava karbidov khromistykh splavov)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957, Vol 85, pp 288-290

ABSTRACT: The effect of B (0.003-0.16%) on the carbide composition of Cr steel was investigated on eight different smeltings of Cr steel containing 1.77-1.99% C & 7.07-8.50% Cr. Specimens were cast into cores 30-35 mm in diameter in sand molds and into rods 7-8 mm in diameter in chill molds. The structure of the thin rods consisted of primary carbides and austenite. The composition of carbides was determined by anodic dissolution in a saturated solution of KCl with 0.5% citric acid at a current density of 0.2-0.3 a/cm<sup>2</sup>. A Cu coil employed for cooling of the electrolyte served as the cathode. As a result of an analysis of the carbide composition it was established that an addition of 0.006% of B reduces the C content in carbides

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SOV/137-58-8-17849

How Boron Inoculation Affects Changes (cont.)

from 13.75% to 10.80% and the Cr content from 12.25% to 8.07%. A similar situation was observed at other concentrations of B.

N. K

1. Chromium alloys--Properties
2. Carbides--Structural analysis
3. Boron--Metallurgical effects

Card 2/2



TYUTEVA, N. D.

TYUTEVA, N. D.

Comparing the modification by cooling with the modification by  
minor additives. Izv.TPI 85:295-303 '57. (MIRA 10:12)

1. Predstavleno prof. doktorom tekhn.nauk A.N. Dobrovidovym.  
(Steel--Metallography)

TYUTEVA, N. D.

TYUTEVA, N.D.; SVISHCHENKO, V.T.

Effect of the modification by boron on the changes in quantity  
and composition of cast tool steel carbides. Izv.TPI 85:304-306  
'57. (MIRA 10:12)

1. Predstavleno prof. doktorom tekhn.nauk A.N. Dobrovidovym.  
(Boron) (Tool steel) (Carbides)

SIMONOV, G.V.; TYUTEVA, N.D.

Manufacture of planer knives with the use of chemical and  
heat treatment method. Der. prom. 14 no.9:10-11. S '65.  
(MIRA 18:12)

1. Tomskiy politekhnicheskij institut im. S.M. Kirova.

TYUTEN'KOVA, N.L.

SHAMIS, D.L.; TYUTEN'KOVA, N.L.; MEDVEDEVA, L.Ye.

Conditions for the preservation of fermentating activity in the  
yeast inducing alcoholic fermentation in molasses. Trudy Inst.  
mikrobiol, i virus. AN Kazakh. SSR 1:96-105 '56. (MLRA 10:6)  
(YEAST) (MOLASSES)

TYUTEN'KOVA, N.L.

Intensifying the dextrinase activity of alcohol yeasts. Trudy Inst.  
mikrobiol. i virus. AN Kazakh. SSR 1:112-117 '56. (MIRA 10:6)  
(YEAST) (DEXTRINASES)

TYUTEREV, G.S.

Observing lunar occultations of stars. Astron. tsir. no. 176:22

Ja '57.

(MIRA 10:6)

1. Tomskiy gosudarstvennyy universitet.  
(Occultations)

TYUTEVA, N. D.

11656\* (Modification of High-Alloy Cast Steels.) Modifi-  
sirovanie litikh vysokolegirovannykh stali. N. D. Tyuteva  
and V. T. Syvchenko. Doklady Akademii Nauk SSSR, v. 161,  
no. 1, May 1, 1954, p. 119-120.  
Improved cutting properties by small additions of B. Tables  
4 ref.

62

①

L 45186-66 EWT(m)/EWP(t)/ETI IJP(c) JD  
ACC NR: AR6027501 SOURCE CODE: UR/0137/66/000/004/I011/I011

AUTHOR: Krevskiy, G. G. ; Simonov, G. V. ; Tyuteva, N. D.

28  
B

ORG: none

TITLE: Effect of ultrasonic treatment on the crystallization process of ShKh15 steel

SOURCE: Ref. zh. Metallurgiya, Abs. 4180

REF SOURCE: Izv. Tomskogo politekhn. in-ta, v. 138, 1965, 192-195

TOPIC TAGS: crystallization, grain growth, ultrasonic treatment/ShKh15 steel

ABSTRACT: Ultrasonic treatment resulted in an increase in density and in the size of the shrinkage cavity of all ingots (38 mm in diameter, 100—120 mm in height). Cylindrical concentrators were found to be the most effective. Treatment is more effective in the case of metal molds. A low crystallization rate resulted in a marked grain growth, in addition to a general improvement in the structure. [Translation of abstract] [DW]

SUB CODE: 20/

Card 1/1 *plu*



ACCESSION NR: AP4009988

S/0109/64/009/001/0148/0154

AUTHOR: Rumsh, M. A.; Tyutikov, A. M.; Shchemelev, V. N.

TITLE: X-ray photoelectric effect of a multilayer cathode

SOURCE: Radiotekhnika i elektronika, v. 9, no. 1, 1964, 148-154

TOPIC TAGS: secondary electron multiplier, multilayer cathode, photoelectric effect, x-ray photoelectric effect, BeO cathode coating, MgO cathode coating

ABSTRACT: An experimental investigation of the effect of the thickness of MgO and BeO passivating layers upon the quantum yield of the photoelectric effect (or the efficiency of a secondary-electron multiplier) is reported. Wedge-type (from tens Å to 7,000 Å) MgO and BeO coatings on Au, Cr, Al, and SrF<sub>2</sub> backings were tested. It was found that: (1) The above effect is not a monotonous function: thickness curves may have maxima and minima; (2) The changing shape of the thickness curves can be explained by (a) groups of electrons with different

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ACCESSION NR: AP4009988

energies which appear in both the coating and the backing, (b) reflection of the coating electrons by the backing, and (c) photoabsorption of the backing fluorescence by the coating substance; (3) The cathode passivating against ultra-violet radiation slightly affects the sensitivity of the secondary-electron multiplier to x-rays; for the purpose of absolute measurement, passivated cathodes should be calibrated for each wavelength. Orig. art. has: 6 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 03Dec62

DATE ACQ: 10Feb64

ENCL: 00

SUB CODE: GE

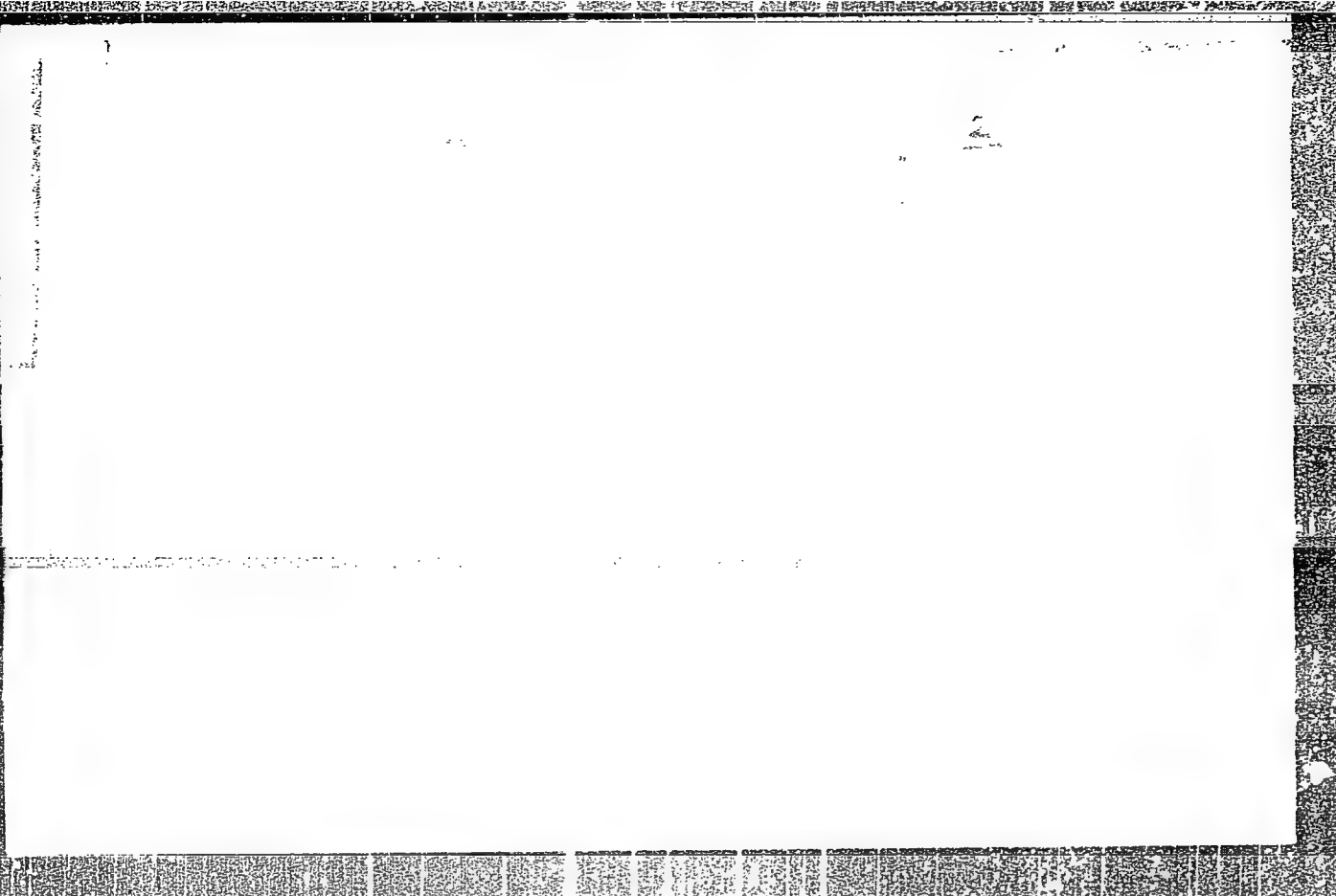
NO REF SOV: 010

OTHER: 001

Card 2/2

**"APPROVED FOR RELEASE: 04/03/2001**

**CIA-RDP86-00513R001857810004-7**



**APPROVED FOR RELEASE: 04/03/2001**

**CIA-RDP86-00513R001857810004-7"**

Tyutikov, A.M.

20-322/60

AUTHORS: Tyutikov, A. M. , Yefremov, A. I.

TITLE: Secondary Electron Multipliers for Recording Long-Wave X-Ray Radiation (Vtorichno-elektronnyye umnozhiteli dlya registratsii dlinnovolnogo rentgenovskogo izlucheniya)

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 2, pp. 286 - 288 (USSR)

ABSTRACT: The application of the open type of a secondary electron multiplier (the multiplier is fastened in the vacuum-zone of the spectrometer without separating windows and the radiation directly falls upon the photo-cathode) as receiver prevents the absorption in the window, whereas all the other advantages of the photoelectric recording are kept up. At such a secondary electron multiplier to the usual requirements (high coefficient of amplification, low background, high performance rating, high stability of the current) is added also the claim for high stability of the parameter in case of application of the device in air. These requirements meet multipliers with diodes, which are made of alloys of a light component (Mg, Be,

Card 1/3

20-2-22/60

Secondary Electron Multipliers for Recording Long-Wave X-Ray Radiation

Al) with a heavy component (Cu, Ni). These alloys were activated by oxygen at a certain temperature. The authors worked out secondary electron multipliers of beryllium-bronze, which combine a high coefficient of amplification with a good usability in air. The method for producing multipliers is shortly described. Such electron multipliers with 16 cascades (including photo-cathode and collector), at a voltage of 3600 V, have a coefficient of amplification of  $1 \cdot 10^9$  to  $2 \cdot 10^9$ . The stability of the coefficient of amplification in case of long working in dry and also in moist air is illustrated by a diagram. The background is 5 to 10 impulses per minute. On occasion of working in a vacuum of  $10^{-4}$  to  $10^{-5}$  torr and in case of current of 10 microamperes, which emerges from the collector, the coefficient of amplification does not change remarkably during a duration of work of 1 to 2 hours. In case of daily operation the apparatus must become overhauled after 3 to 5 months. Such multipliers with a photocathode of nickel have been used successfully for recording the radiation in the reach of 10 to 2 000 Å. The effect of the secondary electron multiplier in the range of the long-wave X-ray radiation and of the remote ultraviolet radiation is at least a few

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Secondary Electron Multipliers for Recording Long-Wave X-Ray Radiation 20-2-22/60

per cent. Thus, the secondary electron multiplier of beryllium-bronze with a photo cathode of platinum, gold, nickel is a device, which fits very well for investigation in the reach of the long-wave X-ray radiation and of the remote ultraviolet radiation. There are 4 figures, and 8 references, 3 of which are Slavic.

**PRESENTED:** July 22, 1957, by A. A. Lebedev, Academician

**SUBMITTED:** July 16, 1957

**AVAILABLE:** Library of Congress

Card 3/3

84688

9.4175

8/051/60/009/005/009/019

E201/E191

AUTHORS: Tyutikov, A.M., and Shuba, Yu.A.

TITLE: Measurement of Weak Photocurrents in Studies of Photoelectric Emission

PERIODICAL: Optika i spektroskopiya, 1960, Vol.9, No.5, pp 631-634

TEXT: Very weak photocurrents occur in studies of the photoelectric emission spectra near the "red edge" and in the far ultraviolet. The authors describe a method of measuring weak photocurrents (down to several photoelectrons per second) based on the use of an electron multiplier of the open type (Ref. 1), capable of measuring currents down to  $10^{-18}$  A (this multiplier is denoted by 7 in Fig. 1). The photocathode of the multiplier was demountable so that various materials could be studied. The multiplier pulses were counted (the counter is denoted by 10 in Fig. 1). The quantum yield was found as a ratio of the counting rate to the number of quanta in a light flux reaching the photocathode. Light fluxes were found by illuminating a sodium salicylate crystal and measuring the resultant luminescence with a separate photomultiplier, ФЭУ-20 (FEU-20) or ФЭУ-25 (FEU-25); the photomultiplier is shown as 4 in Fig. 1. The other parts in Card 1/2

84688

S/051/60/009/005/009/019

E201/E191

Measurements of Weak Photocurrents in Studies of Photoelectric Emission

Fig. 1 have the following meanings: (1) a source of light; (2) a monochromator; (3) a reflector used to direct light onto the photomultiplier (4); (5) an instrument used to measure the photomultiplier current; (6) a stabilized power source of the photomultiplier; (8) a rectifier used as a source of voltages up to 5000 V supplied to the electron multiplier (7); (9) a cathode follower; (11) ~~ЭПП-09~~ (EPP-09). Fig. 2 gives the pulse amplitude distribution at the output of the electron multiplier. The photoemission curves of platinum (curve 1), oxidized beryllium bronze (2), beryllium bronze after a second oxidation (3), strontium fluoride layers (4), and iodine-treated copper (5) are given in Fig. 3 for  $\lambda = 1216-5461 \text{ \AA}$ . The quantum yields increased with the energy of light waves from about  $10^{-14}$  -  $10^{-10}$  at 3 eV to about  $10^{-2}$  at 10 eV. Acknowledgement is made to Academician A. A. Lebedev for his advice and direction of this work. There are 3 figures and 6 references: 4 Soviet and 2 English.

SUBMITTED: February 20 1960

Card 2/2



3331f

S/560/61, 000/010/008/016  
D299/D302

9.6150 (also 1482)

AUTHORS: Shuba, Yu. A., Tyutikov, A. M., and Sorokin,  
O. M.

TITLE: Photocathodes for studying the short-wave  
radiation of the sun

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki  
Zemli. no. 10. Moscow, 1961, 55-60

TEXT: The photocathodes of electron multipliers used in  
studying the short-wave radiation of the sun in the range of  
1 - 1300 Å ought to satisfy the following requirements: (1) high  
stability of spectral characteristics with respect to external  
disturbances, (2) high quantum yield for wavelengths shorter  
than 1300 Å, (3) low sensitivity in the visible and near-  
ultraviolet range, which also ensures that the level of the dark  
current is low at working temperatures. It is also necessary

Card (1/4)

Photocathodes for...

33310  
S/560/61/000/010/008/016  
D299/D302

that the spectral characteristic of the photocathode should decrease by at least 8 orders of magnitude in the range of 1200 to 4000 Å. The above requirements are met by alkali-halide compounds, halides and oxides of alkali-earth metals. In preparing the photocathodes of metallic oxides, the best results were obtained by surface oxidation of halide compounds and also by using alloys of copper and beryllium and magnesium respectively. Measurement of the photoelectric quantum yield was carried out by a method involving the use of a quartz and a vacuum monochromator. This method ensures sufficient accuracy for quantum yield measurements of up to  $10^{-12}$  -  $10^{-14}$  electron/quant. A figure shows the quantum yield for the most stable photocathodes in the spectral region from 850 - 3800 Å. For wavelengths between 1200 - 3800 Å, the cathodes made of MgO and BeO have the steepest slope; the quantum-yield curves for

Card 2/4

33310

S/560/61/000/010/008/016  
D299/D302

Photocathodes for...

SrF<sub>2</sub> and CsJ cathodes are fairly even in the long-wave range. The SrF<sub>2</sub>-cathode was found to be the more stable. In order to determine the accuracy of measurement of the HL<sub>α</sub>-line on the background radiation, the expected counting-rate was estimated by a photocathode with LiF and CaF<sub>2</sub> filters. A figure shows the spectral sensitivity of a detector with MgO-photocathode and LiF and CaF<sub>2</sub> filters, and the expected distribution of the counting-rate. From a table, it is evident that the ratio of the signal (due to the L<sub>α</sub>-line) to the total background level equals 7.02 for an MgO-cathode with LiF-filter and 3.21 without the filter. Analogous computations were carried out for BeO, SrF<sub>2</sub> and CsJ photocathodes having the same filters. These photocathodes were studied in the soft X-ray region of the spectrum. It was found that the efficiency of multipliers with

Card 3/4

Photocathodes for...

33310  
S/560/61/000/010/008/016  
D299/D302

MgO and BeO photocathodes is the order of several percent, whereas with CsJ and  $\text{SrF}_2$  multipliers it reaches several tens of percent. Conclusions: The use of a MgO or BeO photocathode with adequate filters permits recording (by an electron multiplier) the sun's radiation over a wide range of wavelengths. For greater recording-efficiency of X-rays, photocathodes of  $\text{SrF}_2$  and CsJ can be used; but, thereby, the accuracy of determination of the hydrogen line  $L_\alpha$  decreases. There are 3 figures, 1 table and 10 references: 8 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: H. Friedman, Trans. Intern. Astr. Un., 10, 706, 1960, Cambridge Univ. Press; W. C. Walkes, N. Wainfan, G. L. Weissler, J. Appl. Phys., 26, 1367, 1955.

SUBMITTED: April 10, 1961

Card 4/4

20354

S/020/61/136/005/012/032  
B104/B204

9,3120

26.2340

AUTHOR: Tyutikov, A. M.

TITLE: Effect produced by mechanical stresses upon the secondary electron emission of beryllium oxide

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1063-1065

TEXT: The beryllium oxide layers investigated were applied by vacuum sputtering upon elastic steel or beryllium bronze in a thickness of  $1\mu$ , after which they were oxidized, so that a beryllium oxide layer of some ten angstroms was obtained. The specimens measured  $10 \cdot 25 \text{ mm}^2$  and could be bent in vacuo by means of a special device. By this bending, the beryllium layers were compressed or elongated, according to the bending direction. The measurements were carried out in a spherical capacitor at a pressure of  $5 \cdot 10^{-7} \text{ mm Hg}$ . As follows from the volt-ampere characteristics shown in Figs. 1 and 2, the saturation potential of secondary electron emission is increased with growing compressive stress; the velocity distribution of the electrons has two maxima. The first maximum coincides with the maximum of the true secondary electrons, and

Card 1/5

20354

S/020/61/136/005/012/032  
B104/B204

Effect produced by mechanical...

its intensity decreases with increasing tension. The second, very blurred maximum corresponds to the electrons with "insufficient energy", and with an increase of tension it is broadened and shifted somewhat in the direction of larger drawing fields. If the sag with a thickness of the specimen of 0.1 mm amounts to only 2 - 3 mm, after removing mechanical tension, the original volt-ampere characteristic is restored. With a thickness of the specimen of 0.5 mm, sags of more than 2 - 3 mm lead to a change in the volt-ampere characteristic. Special attention is drawn to the change in the volt-ampere characteristic with constantly and considerably bent specimens in the course of time. This is explained by a change in the character of the secondary electron emission, which, in turn, is caused by lattice defects. From the further results of investigations the conclusion is drawn that the lattice defects essentially influence the probability of electron yield. The traps formed on this occasion decrease the drawing field. The coefficient of secondary electron emission attains the limit within 20 - 30 sec. The author further expresses the opinion that the defects of the crystal lattice are not only traps for secondary electrons, but also for electrons existing for replacing emitted electrons. The author thanks A. A. Lebedev for his

Card 2/5

20354

S/020/61/136/005/012/032  
B104/B204

Effect produced by mechanical...

interest and help. There are 4 figures.

PRESENTED: August 8, 1960, by A. A. Lebedev, Academician

SUBMITTED: July 30, 1960

Card 3/5

Effect produced by mechanical...

Legend to Fig.1: Dependence of the volt-ampere characteristic of secondary electron emission of beryllium oxide on the sag. Base layer of bronze with a thickness of 0.1 mm. Energy of electrons 400 ev;  $I_0 \sim 10^{-7}$  a.

- 1) Initial specimens. 2) Sag (compression) 3 mm. 3) Sag 6 mm. 4) Sag (traction) 1 mm. 5) Sag (traction) to 2 and 6 mm, the curve, after removal of stress, was on the initial curve.

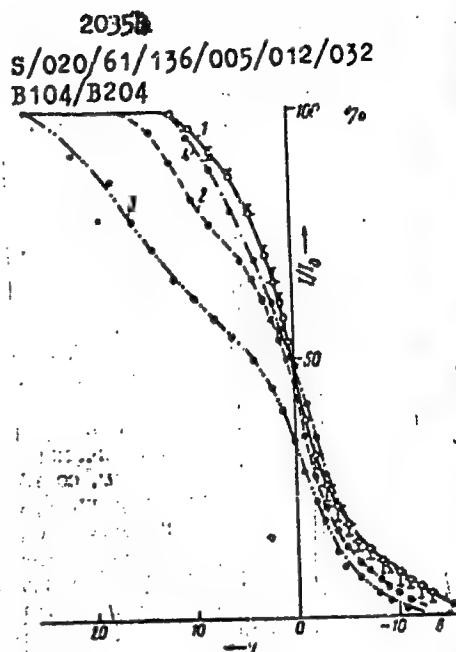


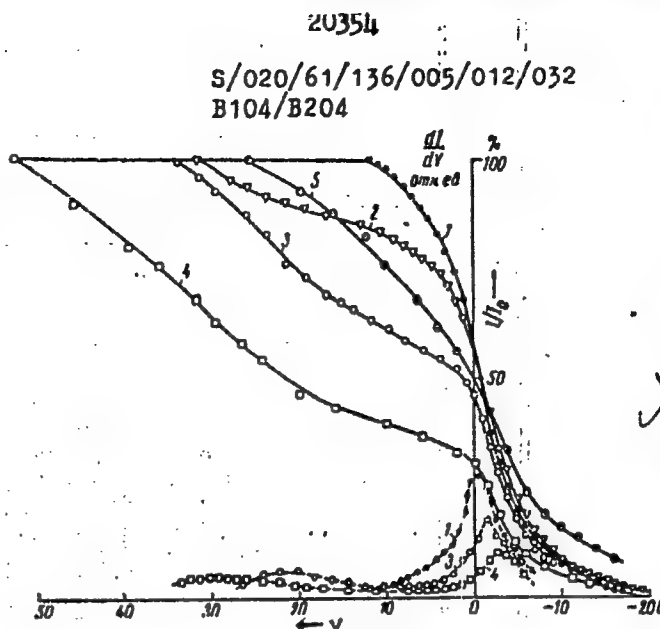
Fig. 1

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Effect produced by mechanical...

Legend to Fig.2: Dependence of the volt-ampere characteristics of the secondary electron emission of beryllium oxide upon compression. Base layer of steel with a thickness of 0.5 mm; energy of primary electrons 400 ev;  $I \sim 10^{-7}$  a. 1) Plane specimen. 2) Sag 3 mm. 3) Sag 3 mm, measured after 24 hr. 4) Sag 6 mm. 5) Plane specimen after compression. The dotted curves 1, 3, 4 were obtained by differentiating the corresponding curve.



Card 5/5

TYUTIKOV, A. M., and YEFREMOV, A. I.

"Grazing Incidence Vacuum Monochromator Research Between 20A and 300A."

report to be submitted for the 1st Intl. Conference on Ultraviolet Vacuum  
Radiation Physics.  
University of Southern California  
16-19 April 1962

S/120/62/000/001/037/061  
E032/E314

9,4130

AUTHOR: Tyutikov, A.M.

TITLE: On the operation of a secondary-electron multiplier  
of the open type under pulse-counting conditions

PERIODICAL: Pribory i tekhnika eksperimenta, no. 1, 1962,  
154 - 157

TEXT: The multiplier was originally described by the  
present author and A.I. Yefremov in Ref. 1 (Dokl. AN SSSR,  
1958, 118, no. 2, 286). In addition to the usual instabilities,  
this multiplier is also subject to fluctuations due to exposure  
to air. Changes in the amplification coefficient due to aging  
and to changes in the potential differences across the voltage-  
divider can be appreciably reduced by counting the voltage  
pulses produced at the output of the multiplier by interactions  
between the incident radiation and the cathode material, in  
which at least one secondary electron is emitted. In order  
to select correctly the threshold of operation and the necessary  
dynamic range of the scaling unit, it is necessary to have  
a knowledge of the pulse-height distribution at the output of  
Card 1/2

✓  
B

On the operation of ....

S/120/62/000/001/037/061  
EO32/E314

the multiplier. The author has determined this distribution under various conditions and reports that standard scaling devices can be used with good reproducibility in conjunction with these multipliers. The reproducibility can be made better than 3% and, counting losses due to the dynode system, do not exceed 5 - 10% when the amplification coefficient is varied within wide limits. It is concluded that when operated under pulse-counting conditions, the secondary electron multiplier can be used to measure the absolute number of effective interactions of the radiation under investigation with the cathode material, which is very important in quantum-yield studies. There are 4 figures. ✓  
B

ASSOCIATION: Gosudarstvennyy opticheskiy institut  
(State Institute of Optics)

SUBMITTED: March 4, 1961

Card 2/2

24650

S/048/62/026/011/008/021  
B125/B102

AUTHORS: Tyutikov, A. M., Kuzmina, M. F., and Tumareva, T. A.  
TITLE: Some technical and operational characteristics of the "open"  
secondary-electron multiplier

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,  
v. 26, no. 11, 1962; 1390 - 1391

TEXT: Practical experience gained with open (i.e. without glass balloon) secondary-electron multipliers is reported. Such multipliers have been developed and investigated in recent years at the laboratoriya A. A. Lebedeva (Laboratory A. A. Lebedev). They can be used, without previous calibration, to determine absolutely the number of interaction events in the radiation to be studied using the cathode substance, provided that, in this interaction, at least one electron is stripped. They are especially efficient for recording ultraviolet radiation, soft X-rays and low-energy charged particles. Cathode efficiency and amplification factor of these multipliers appear not to be affected by air when the multipliers are used in vacuum plants with a daily air entrance. The coefficient of secondary-electron emission is found to be most stable

Card 1/2

Some technical and operational...

S/048/62/026/011/008/021  
B125/B102

against the action of air when activated beryllium bronze emitters are used. 16-channel multipliers of this type with trough-shaped dynodes have amplification factors from  $10^8$  to  $10^9$  with potential differences of 3000 to 4000 v applied to the divider. This amplification factor decreased to between  $1/3$  and  $1/5$  of the initial value when the multiplier was kept in either dry or damp air. The initial value can be regained by additional oxidation at  $650^\circ\text{C}$ . The initial instability of amplification decreases when the output amperage is reduced, when the multiplier ages, and when the thickness of the emitting layer of the last dynodes decreases. The operating time of these multipliers is limited by a decrease of the amplification factor to  $\sim 1\%$  of its initial value. At  $10^{-5}$  mm Hg and with a current output of  $1 \mu\text{A}$  this time extends over 3 - 6 months. The efficiency with which the radiation to be studied can be recorded depends only on the cathode efficiency. The reduction of the amplification factor owing to the ageing of the multiplier and to the fluctuations of the potential difference at the voltage divider is accompanied by a reduction of the deviations of the pulse amplitudes with relatively small changes of the minimum values.

Card 2/2

S/120/63/000/001/028/C72

EO32/E314

AUTHOR: Tyutikov, A.M.

TITLE: An open-type multiplier with a Venetian-blind cathode

PERIODICAL: Pribery i tekhnika eksperimenta, no. 1, 1963,  
118 - 119

TEXT: This secondary-emission multiplier was developed for use with mass-produced instruments, e.g. mass-spectrometers. The optics of the device are illustrated in Fig. 1, in which 1 is a demountable Venetian-blind cathode, 2 is the first dynode, 3 screens, 4 focusing grid, 5 focusing electrode, 6 spring-loaded contact, 7 dynode, 8 contact strips, 9 porcelain base, 10 clamping pin and 11 the collector. (Author's correction: the first dynode should lie to the right of the dynode marked '2' in the figure.) The dynodes are similar to those described by Y.S. Allen (Rev. Scient. Instrum., 1947, 18, 739). The working area of the cathode is 12 x 15 mm. 90-100% collection of the electrons leaving the cathode is possible for a potential difference of 300 - 600 V between the cathode and the first dynode.  
Card 1/2

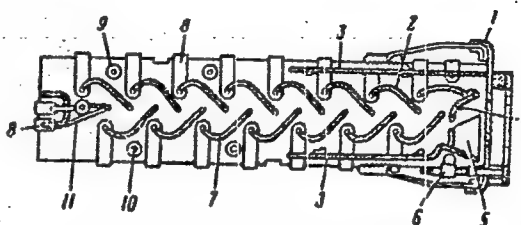
An open-type multiplier ....

S/120/63/000/001/028/072  
EO32/E314

The background at 300 V between the cathode and the first dynode is usually less than 1 or 2 p.p.s. The remaining characteristics are similar to the secondary-emission multipliers described earlier (A.M. Tyutikov - PTE, 1962, no. 1, 154). There are 4 figures.

ASSOCIATION: Gosudarstvennyy opticheskiy institut  
(State Optical Institute)

SUBMITTED: March 24, 1962



Card 2/2

Fig. 1:



*TYUTIKOV, A.M.*

PHOTOEMISSION AND SECONDARY ELECTRON EMISSION OF BeO LAYER  
ON OXIDIZED Be BRONZE (USSR)

Tyutikov, A. M. Radiotekhnika i elektronika, v. 8, no. 4, Apr 1963, 691-697.  
S/109/63/008/004/021/030

In order to determine the influence of O and Be admixtures on the secondary electron emission from variously processed oxidized Be bronze, the photoemissions of the latter have been investigated at varying conditions of emitter heating and exposure to air. Measurements were made by means of a secondary-electron multiplier, using a cathode made of the investigated material, in the 2000- to 6000-Å range at temperatures ranging from 0 to 700°C and at vacuums of  $2 \cdot 10^{-6}$  mm Hg. or more. Graphs are given of the spectral distribution of quantum yields as measured under several combinations of heating and gas atmospheres. The energy levels measured ranged from 2 to 6 ev. The appearance and shifting of singular points in the spectral curves are analyzed. The results

Card 1/2

AID Nr. 981-14 3 June

PHOTOEMISSION AND SECONDARY ELECTRON [Cont'd]

8/109/63/008/004/021/030

indicate that the photoemission observed is a function of the oxide surface structure, not of gas atoms adsorbed onto it. Moreover, it was ascertained that during heat activation, emitters with equal thickness of oxide films and approximately coinciding spectral characteristics may have coefficients of secondary emission ( $\sigma_{\max}$ ) varying from 5 to 11, which shows that for the emitters tested (quantum yield with oxide admixture,  $10^{-11}$  to  $10^{-13}$  electr/quant) the value of  $\sigma_{\max}$  is determined by factors other than the type of oxide, the thickness of the oxide layer, or admixture concentration. The data show that  $\sigma_{\max}$  decreased as the Be content in the oxide film increased and that prolonged exposure of the emitter to air increased the oxide content at the expense of Be, with a corresponding shift in spectral response. [DW]

Card 2/2

TYUTIKOV, A. M.

AID Nr. 981-9 3 June

STRUCTURE AND SECONDARY ELECTRON EMISSION OF ACTIVATED  
BERYLLIUM BRONZE EMITTERS (USSR)

Tyutikov, A. M. Radiotekhnika i elektronika, v. 8, no. 4, Apr 1963, 698-  
708. S/109/63/008/004/022/030

The secondary emission characteristics of the emitters were measured in a spherical capacitor at pressures of  $5 \cdot 10^{-7}$  to  $2 \cdot 10^{-6}$  mm Hg. Electron diffraction photos of emitters activated by the method of dosed oxidation showed the presence of beryllium oxide layers on the emitter surfaces. The oxide layers had a close-packing hexagonal crystal lattice and did not show the presence of extraneous inclusions. This leads to the assumption that inclusions are contained in the form of solid solutions which do not influence the value of the secondary-emission coefficient  $\sigma$ . Within the limits of measurement accuracy (1 to 2%), no distortions of the crystal lattice parameters ( $a = 2.69 \text{ \AA}$ ,  $c = 4.37 \text{ \AA}$ ) were detected. Some of the specimens obtained by oxidation at 740 to 750°C in

Card 1/2

AID Nr. 981-9 3 June

STRUCTURE AND SECONDARY ELECTRON [Cont'd]

S/109/63/008/004/022/030

aquadag vapors showed the presence of an oriented BeO layer. Under identical conditions, other specimens showed the presence of a nonoriented Be<sub>2</sub>C layer with a cubic lattice of the fluorite type ( $a = 4.33 \text{ \AA}$ ). During the exposure of the emitters to the air, the type and degree of layer orientation, as well as the phase composition of the surface layers remained unchanged and did not have a marked effect on  $\sigma$ . In cases where  $\sigma$  underwent considerable variations following the exposure of the emitter to the air, the phenomenon was probably due to an increase of the number of crystal lattice defects in the oxide layer.

[DW]

Card 2/2

AUTHOR: Gail', R. N.; Podkopaeva, N. G.; Podolskiy, P. Ye.; Tyul'skiy, A. M.;  
Shterebnevskiy, M. M.

TITLE: An ion counter 14

SOURCE: Novyye mashiny i pribory dlya ispytaniya metallov. Sbornik statey.  
Moscow, Metallurgizdat, 1963, 152-156

TOPIC TAGS: ion counter, ion current channel, mass spectrometer, ion channel  
sensitivity, ion counter design, ion current measurement

ABSTRACT: Noting that one of the fundamental problems in the development of mass-  
spectrometric equipment is the need to increase the measurement sensitivity for  
ion currents (which do not exceed  $10^{-15}$  ampere in conventional mass-spectro-  
meters), the authors are concerned with the problem of increasing the  
1000-fold increase in the sensitivity of the ion counter. The authors present a  
simplified block diagram of the ion counter (see Fig. 1 in the Enclosure), the  
design of an ion receiver and an electron multiplier with measuring unit are illus-  
trated. Three procedures are described for the use of this counter in measuring

lower sensitivity  
Card 1/5

L 8922-65

ACCESSION NR: AT4013983

electrometric amplifier, the level of which corresponds to an ion current of  $2 \cdot 10^{-15}$  amperes. The second method - the measurement of the integral value of the current at the output of the electron multiplier - provides a test range for ion currents extending from  $10^{-10}$  to  $10^{-18}$  amperes with a multiplier gain factor of  $10^9$ . The third procedure calls for the ion current to be measured according to the mean repetition frequency of the pulses, created by the individual ions, at the multiplier output. In this case, the recommended test range is  $10^{-15}$  -  $10^{-18}$  amperes. The operation of the test circuit with the electron multiplier is described in detail. The pulse amplifier contains a pulse-shaping stage, three voltage-boosting stages and a cathode follower at the output. Maximum gain of the pulse amplifier is  $3 \cdot 10^4$ ; amplitude characteristic is non-linearly up to an output voltage of 150 volts is not more than 2% and phase shift is not more than 10 degrees. In continuous operation is less than 2%. The time constant of the integrator network is said to be 1 second. A 16-stage linear electron multiplier with electrostatic focussing is used in the ion counter. The dynode activation method employed provides high gain range has with high stability. The ion counter was tested on a HilgO's mass-spectrometer with a central trajectory radius of the ion beam of 300 mm. An error range below 2% was confirmed in the measurement of abundance ratios for Hg and Xe isotopes. Orig. Art. 1111

Cord 2/2

L 6941-05

ACCESSION NR: AT4013983

ASSOCIATION: Spetsial'noye konstruktorskoye byuro analiticheskogo priborostron-  
yeniya (Special Design Bureau for Analytical Instrumentation)

SUBMITTED: 00

ENCL: 02

SUB CODE: NP

NO REF SOV: 001

OTHER: 001

Card 3/5

L 8911-65

ACCESSION NR: AT4013983

ENCLOSURE 01



ACCESSION NO.

FILE NO.

DATE

DESCRIPTION

CARD

RUMSH, M.A.; TYUTIKOV, A.M.; SHCHEMELEV, V.N.

X-ray photoeffect of a laminated cathode. Radiotekh. i elektron.  
9 no.1:148-154 Ja '64. (MIRA 17:3)

TYUTIKOV, A.M.; SHAPIRO, Yu.A.

Distortions in the delay curves for three-electrode analyzers  
caused by the grids. Zhur. tekhn. fiz. 33 no.10:1265-1273 O '63.  
(MIRA 16:11)

TYUTIKOV, F.M., aspirant

Variability of the type B of *Clostridium perfringens* caused  
by ultraviolet rays. Veterinariia 42 no.9:19-21 S '65.  
(MIRA 18:11)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

TYUTIKOV, F.M., aspirant

Effect of ultraviolet rays on the biological properties of  
*Clostridium perfringens* type B. Veterinariia 41 no.2:21-24  
F '65. (MIRA 18:3)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

ACC NR: AP5028192

SOURCE CODE: UR/0346/65/000/009/0019/0021

AUTHOR: Tyutikov, F. M. (Aspirant)

ORG: All-Union Institute of Experimental Veterinary Medicine (Vsesoyuznyy institut eksperimental'noy veterinarii)

TITLE: Variability in type B *Clostridium perfringens* induced by ultraviolet rays

SOURCE: Veterinariya, no. 9, 1965, 19-21

TOPIC TAGS: biologic mutation, clostridium, UV irradiation, bacterial genetics

ABSTRACT: Ultraviolet irradiation of type B *Clostridium perfringens* resulted in mutants with properties different from those produced by spontaneous variability of this microorganism under laboratory conditions. The number of morphological mutants increased with increase in dose up to a certain point and then decreased. Thus, the optimum doses of UV rays required to induce the maximum variability varies from strain to strain. The variability of the morphological mutants of *Cl. perfringens* is characterized by decreased formation of toxins. Change in toxigenicity of mutants is not always correlated with change in the shape of the colonies. Orig. art. has: 3 figures, 1 table.

SUB CODE: 06/

SUBM DATE: 00+

ORIG REF: 000/

OTH REF: 000

UDC: 619 : 616.981.55=095.5

Card 1/1

TYUTIKOV, G. P.

N/5  
755.34  
.T91

TYUTIKOV, G P

Neue Technik im Bahnbetriebswerk Hrag. von der Lehrmittelstelle  
der Deutschen Reichsbahn. Leipzig, Fachbuchverlag, 1954. 62 p. illus.,  
diags., tables. Translation from the Russian: "Novaya tekhnika v  
parovoznom delo", Moscow, 1951.

TYUTIKOV, G.T., inzh.; RUDNEV, G.S., tekhnik; KUPRIN, A.I., inzh.

Laboratory and industrial studies of local resistances in free-flowing hydraulic transportation. Izv. vys. uch. zav.; gor. zhur. 5 no.6:95-97 '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut po gidrodobyche uglya (for Tyutikov, Rudnev).
2. Sibirskiy metallurgicheskiy institut imeni S. Ordzhonikidze (for Kuprin). Rekomendovana kafedroy gidrodobychi Sibirskogo metallurgicheskogo instituta.

(Hydraulic conveying)



KUPRIN, A.I., inzh.; KOIMAKOV, V.Ye., inzh.; TYUTIKOV, G.T., inzh.  
DHEN DA-DZHUN, inzh.

Basic parameters of the hydraulic conveying of rocks in enameled  
troughs without pressure. Shakht.stroi. 6 no.1:16-19 Ja '62.  
(MIRA 14:12)

1. Sibirskiy metallurgicheskiy institut (for Kuprin). 2. Shakhta  
"Koksovaya-1 (for Kolmakov). 3. Vsesoyuznyy nauchno-issledovatel'skiy  
i proyektno-konstruktorskiy institut po gidrodobyche uglya  
(for Tyutikov).  
(Hydraulic conveying)

KKUPRIN, A. I., inzh., TYUTIKOV, G.T., inzh., PIGOROV, G.S. inzh.

Experimental investigation of hydraulic transportation using chutes.  
Shakht. stroi. 4 no.12:10-12 D '60. (MIRA 13:12)

1. Sibirskiy metallurgicheskiy institut (for Kuprin). 2. Vsesoyuz-  
nyy nauchno-issledovatel'skiy inatitut Gidrougol' (for Tyutikov,  
Pigorov)

(Mine haulage)

ACC NR: AP6036967 (A,N)

SOURCE CODE: UR/0181/66/008/011/3254/3259

AUTHOR: Kolyadin, A. I.; Ageyeva, L. Ye.; Tyutikova, L. P.

ORG: none

TITLE: Small-angle scattering of light in ruby and leucosapphire single crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3254-3259

TOPIC TAGS: small angle scattering, ruby, sapphire, light scattering

ABSTRACT: Small-angle scattering of light was studied in one leucosapphire and one ruby sample of cylindrical shape with zero orientation of the axis, i. e., in which the optic axis of the crystal was parallel to the geometric axis of the cylinder and was at the same time the growth axis, and also in two leucosapphire samples and several ruby samples with a 90° orientation of the optic axis. The measurements were made with a small-angle nephelometer. It was found that in both types of orientation, scattering takes place mainly in the direction perpendicular to the electric vector, the ordinary ray being scattered at larger angles than the extraordinary ray. For both types of rays, the scattering coefficients in the plane of the electric vector are one order of magnitude smaller than the corresponding coefficients in the perpendicular plane. The scattering coefficients in the plane perpendicular to the electric vector for the extraordinary ray decrease more slowly with increasing angle than

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ACC NR: AP6036967

for the extraordinary ray. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: 13Apr66/ ORIG REF: 006/ OTH REF: 003.

ATD PRESS: 5107

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SHATILOV, A.V.; TYUTIKOVA, L.P.

Example of designing an interference light filter by the method of  
consecutive synthesis. Opt. i spektr. 14 no.3:426-429 Mr '63.

(MIRA 16:4)

(Light filters—Design and construction)

TYUTIKOVA, M.I.; KUZNETSOVA, M., red.; LAKHMAN, F., tekhn. red.

[Balance for weighing minor masses] Vesy dlia izmereniia malykh  
mass. Moskva, Gos.izd-vo standartov, 1960. 23 p. (Seriia obzor-  
nykh monografiy po izmeritel'noi tekhnike, no.14) (MIRA 15:4)  
(Balance)

IPPITS, M.D.; TYUTIKOVA, M.I.

Testing areometers in a single liquid. Izv.tekh. no.12:17-21 D  
'61. (MIRA 15:1)

(Hydrometer--Testing)

S/589/62/000/062/011/011  
E194/E136

AUTHOR: Tutikova, M.I.

TITLE: Crystalline quartz 1-gram weights

SOURCE: USSR. Komitet standartov, mer i izmeritel'nykh priborov. Trudy institutov Komiteta. no.62(122). Moscow, 1962. Issledovaniya v oblasti izmereniy vyazkosti, plotnosti i massy. 73-75.

TEXT: Until recently, milligram balance weights were calibrated against 1-gram reference weights made of bronze or stainless steel. The milligram weights themselves are made of aluminium, and so a correction had to be made for air displacement. Variations in air density alone could introduce an intolerable error and it would be inconvenient to determine the density of the air experimentally every time the standards were used. The solution adopted was to make special weights of 1 gram out of crystalline quartz which, besides being of the same density as aluminium, has a smooth and easily cleaned surface and good resistance to wear. Of course, quartz gram and milligram weights have been made before, but except for this rather special application their bulk is usually a

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Crystalline quartz 1-gram weights

S/589/62/000/062/011/011  
E194/E136

disadvantage. It was checked experimentally that the particular quartz weights used did not absorb water. In 1958 the "Etalon" works in Leningrad made a number of 1-gram weights in the shape of quartz cylinders 8 mm in diameter and 8 mm long. The weights were certified in the VNIIM, having been compared with existing quartz weights. The completed and calibrated weights were then despatched to a number of places for practical use and were returned annually to VNIIM for checking. The results show that the weights have not altered in use and have good resistance to wear. They are particularly suitable for calibrating milligram balance weights. There is 1 table.

ASSOCIATION: VNIIM

SUBMITTED: January 17, 1961

Card 2/2

TYUTIKOVA, M.I.

One-gram weights from crystalline quartz. Trudy inst. Kom.  
stand., mer 1 izm. prib. no.62:73-75 '62. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii  
imeni Mendelayeva.

(Weights and measures)

DEPITS, M.D. [deceased]; TYUTIKOVA, M.I.

Glass alcoholmeter with weights. Im. tek. . no. 5852-53 My'44  
(MIRA 17:1)

Tyulikova, M.I. —

24(0); 5(4); 6(2)

Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni  
D.I. Mendeleeva.

*Sbornik nauchno-lasledovatel'skikh rabot; sbornik No. 2 (Scientific Research Abstracts; Collection of Articles, Nr. 2) Moscow, standardized 1968. 139 p. 1,000 copies printed.*

Additional Sponsoring Agency: USSR, Komitet standartov, ser. 1  
izmeritel'nykh priborov.

Ed.: V. Babushina; Tech. Ed.: N. A. Kondrat'yeva.

**PURPOSE:** These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and bases for the various industries.

COVERAGE: The volume contains 128 reports on standards of measurement and control. The reports were prepared by scientists of institutes of the Komitet Standartov, mer i izmeritel'nykh priborov pri Svoem Ministre SSSR (Commission on Standards, Measures, and Measuring Instruments) under the USSR Council of Ministers). The participating scientific metrology centers (Ministries) (All-Union Scientific Research Institute of Metrology, Leningrad; D.I. Mendeleev) in Leningrad; Sverdlovsk branch of this Institute: VNIIM - Vsesoyuzny nauchno-issledovatel'skiy Institut Komitet Standartov, mer i izmeritel'nykh priborov (All-Union Scientific Research Institute of the Commission on Standards, Measures, and Measuring Instruments), created from MOIIMP - Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Moscow State Institute of Measures and Measuring Instruments) October 1, 1955; VNIIPRI - Vsesoyuzny nauchno-issledovatel'skiy institut fiziko-khimicheskikh i radioelektricheskikh izmereniy i prikladnogo inzhenering (Research Institute of Physicochemical and Applied Engineering Measurements) in Moscow; VNIIPRI - Vsesoyuzny gosudarstvennyy institut mer i izmeritel'nykh priborov (Vsesoyuzny gosudarstvennyy institut mer i izmeritel'nykh priborov (All-Union State Institute of Measures and Measuring Instruments); and MOIIMP - Novosibirskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Novosibirsk State Institute of Measures and Measuring Instruments). No personalities are mentioned. There are no references.

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**Mass and Density Measurements (Rudo, M.N., Editor, Candidate of Technical Sciences)**

Smirnova, N.A. (VNIIM). Studying Conditions for Securing Maximum Sensitivity of Equal-arm Pneumatic Balances 21

Morozova, I.M. (VNIIM). Experimental Study of Reasons for Variations in the Readings of Analytical Balances 22

Kokoah, G.D. (VNIIM). Designing Model Balances of the First Class with a Range of 2g and Value of Decisions of 0.002 mg 23

Rado, N.M. (VNIIM). New VNIIM Balance for Checking Standards 23

Drizikova, M.I. (VNIIM). Developing Methods and Means of Checking Balances with Load Range of 2 mg or Less. 25

Chinayev, A.I., and G.A. Gol'dshchaya (MOMIP); G.A. Cherkasov, V.V.  
Card 6/27

TYUTIKOVA, M. I.

"Investigation of the Sensitivity and Uniformity of Torsion Balances of Small Load Capacity." Cand Tech Sci, All-Union Sci-Res Inst of Metrology, Leningrad, 1954. (RZhMekh, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

IPPITS, M.D.; TYUTIKOVA, M.I.

Using the ADV-200 balance for determining liquid density. Izv.  
tekh. no.8:27-30 Ag '62. (MIRA 16:4)  
(Densitometers)

TYUTIN, A., inzh.

Standardized building with a bearing frame. Sel'. stroi. 16  
no.1:21-22 Ja '62. (MIRA 16:1)  
(Barns) (Precast concrete construction)

TYUTIN, A., inzh.-arkhitektor

Milking parlors from precast concrete. Sel'. stroi. [i.e. 16] no. 3:23  
Mr '62. (MIRA 15:7)

1. Saratovskiy gosudarstvennyy proyektnyy institut Privolzhgiprosel'-  
khozstroy.

(Saratov Province--Dairy barns)



KORENBLYUM, B.I.; TETEL'BAUM, S.I.; TYUTIN, A.A.

One tomographic system. Izv.vys.ucheb.zav.; radiofiz. 1 no.3:151-157  
' 58. (MIRA 12:1)

1. Kiyavskiy politekhnicheskii institut.  
(X rays)

06546

SOV/142-2-2-22/25

9(2,3)

AUTHOR: Tyutin, A.A., Engineer

TITLE: A Critique of the Book by J. Bednařik and J. Daněš  
"Video Amplifiers for Television and Measuring Engineering"

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika,  
1959, Vol 2, Nr 2, pp 256-257 (USSR)

ABSTRACT: The author reviews the book by J. Bednařik and J. Daněš  
"Obrazové zesilovače pro televizi a měřicí techniku",  
Státní nekladatelství technické literatury, Praha, 1957.  
The purpose of this book is filling a gap in the Czech  
engineering literature in the field of video ampli-  
fiers and aiding in the future development of televi-  
sion and pulse engineering in Czechoslovakia. The au-  
thor stated that the methods explained in the book are  
based on the work of Soviet scientists - G.B. Braude,  
V.L. Kreytser and D.V. Stepanov. The section dealing  
with video amplifiers working on carrier frequency is  
based on the book by Volley (Volley) and Wallman (Uoll-  
men) "Tube Amplifiers" ("Lampovyye usiliteli"). The

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06516

SOV/142-2-2-22/25

A Critique of the Book by J. Bežnařík and J. Daněk "Video Amplifiers for Television and Measuring Engineering"

author discusses the six chapters of this book without going into details. He recommends the book for translation into the Russian language, since it is a valuable aid for engineers and senior students. There is 1 Czech reference.

Card 2/2

TYUTIN, A. A. [Tiutin, A.O.]

Computing amplifier for a specialized integrator with periodi-  
zation of the solution. Avtomatyka no.2:50-61 '60.  
(MIRA 13:7)

1. Institut elektrotekhniki AN USSR.  
(Electronic calculating machines) (Amplifiers (Electronics))